

*file*OIA-12/84
17 January 1984

25X1 MEMORANDUM FOR: [] New Building Project Office
Office of Logistics

25X1 FROM: []
Planning Officer, Imagery Analysis

SUBJECT: Selected Utility Requirements for OIA in the New Headquarters Building

1. In response to your inquiry regarding OIA's computer and mensuration rooms in the new building, below are selected requirements and some background data.

a. Computer Room

- normal office air and cleanliness conditions are sufficient.
- equipment does not generate significant heat.
- room will have four, and possibly five, medium speed HETRA printers. Each uses 115 volts, 60 HZ, 10 amps. One of the three also requires a 115 volt "line driver".
- room may have as many as five CRT terminals, each using 115 volts, 60 HZ, 3 amps.

b. Mensuration Room

- assuming that the room will be 45 feet by 20 feet, attachment 1 is a revised layout for the mensuration equipment drawn to scale. We no longer have the Mann comparator which was included in previous drawings. The equipment labeled "IDEX/INTERGRAF" is a planned computer graphics system whose requirements have not yet been defined.

- the heaviest device is the McBain Stereo. This device sits on a 7 by 13 foot one-half inch thick steel plate. The plate weighs approximately one ton and the mensuration device weighs 6 tons. Under the steel plate is a poured latex leveling cushion approximately one-half inch thick. The latex cushion and steel plate were installed in Building 213 to distribute the weight of the device. The mensuration device sits on five pedestals each 8 inches by 10 inches. According to our calculations, floor loading without the plate would be approximately 30 pounds per square inch or 4,320 pounds per square foot.

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- electrical and mechanical requirements for each of the three mensuration devices and other necessary equipment is provided in attachment 2. Please ensure that electric power to the mensuration devices is filtered to provide the "noise-free" power typical for computer room applications. [redacted]

2. Soundproofing is not required for the mensuration room. All doors must be self-closing, with a positive latch. The doors must also be "sealable" in that they assist in the maintenance of a controlled environment (temperature, humidity, and cleanliness) in the room as has been indicated in previous requirements. It is vital that the environmental system for this room be "stand alone," separate from any system that controls the office space environment. Operational priority should be given to this system as it would to any sophisticated computer room system. [redacted]

3. Of the two fire suppression systems which have been offered for the mensuration room, we prefer one with flow control heads which would automatically shut off after extinguishing a fire and cooling the room. [redacted]

4. Revised personnel strength for the office is as follows. Figures for 1986 and beyond are budget submissions which have not yet been approved.

FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
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5. There is an excellent chance that OIA will acquire additional sophisticated image exploitation equipment by 1989. The system is known as IDEX and will require room for five analyst "stations" as well as a room for the associated computer hardware, tape drives and tape storage. OD&E has informed us that space for the entire system will require approximately 2,500 square feet. [redacted]

Attachments:
a/s

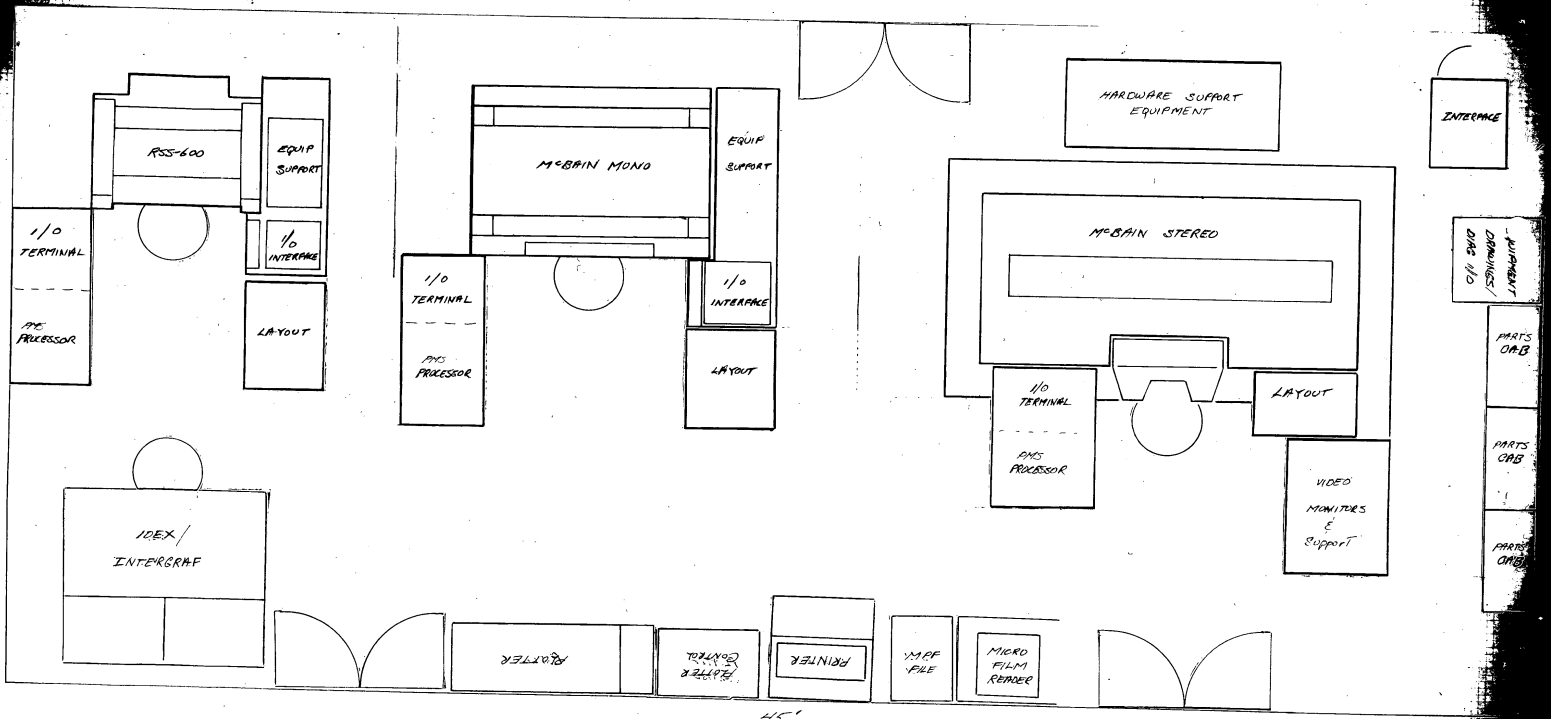
Distribution:

Original - Addressee
1 - DI/OIA/ODIR
1 - DI/OIA/PASB/PO

DI/OIA [redacted] (17 Jan 84)

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ATTACHMENT



ABSOLUTE MINIMUM SIZE REQUIREMENT.
 ALLOWS NO ROOM FOR GROWTH.

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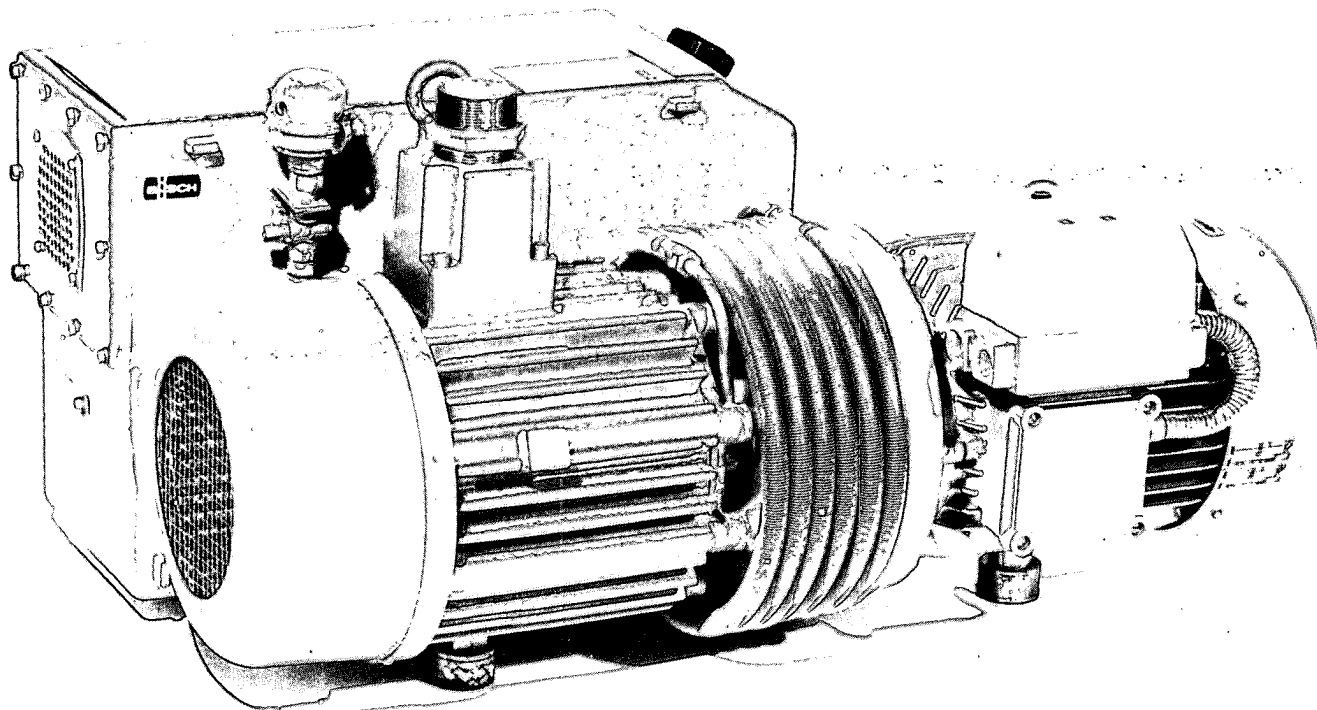
UNCLASSIFIED

Attachment 2

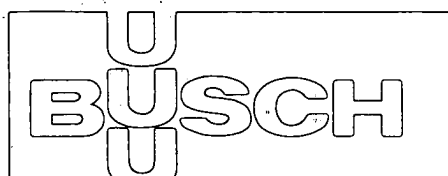
Electric and Mechanical Requirements

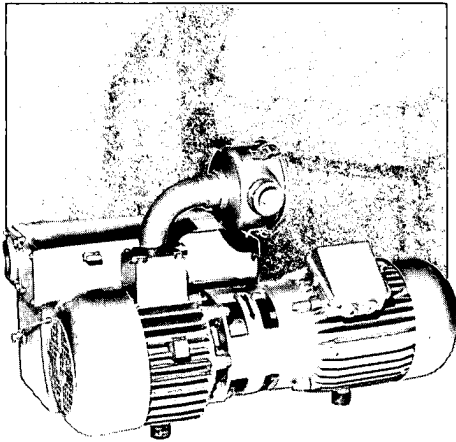
1. McBain Stereo Mensuration Device - four dedicated electrical circuits. Two 120 volt, single phase 50 amp circuits and two 120 volt single phase 20 amp circuits.
2. McBain Hydrostatic Mensuration Device - four dedicated electrical circuits, each 120 volts, single phase, 20 amps.
3. RSS-600 Mensuration Device - two dedicated electrical circuits, each 120 volts, single phase, 20 amps.
4. Vacuum system - we require two vacuum lines to the McBain stereo and one each to the Hydrostatic and the RSS-600. The vacuum system must provide a displacement of 117 cubic feet per minute at a rating of 30 in. Hg. All four lines should manifold near the pump, as opposed to a manifold located in the mensuration room. This should lessen the impact of line surges. Also, a backup pump is required for the system. Attachment three is a technical brochure describing the vacuum pumps we prefer (Busch R5 series, type 160) and attachment four is a quotation describing the upgraded system recently installed in Building 213.
5. Compressed air - we require one compressed air line providing filtered, moisture-free air to the RSS-600 and the McBain Stereo. A manifold can be located in the mensuration room. The requirement for compressed air is for at least 50 pounds per square inch.
6. Computer terminals (CRT's) - we require a total of three terminals for the three mensuration devices. All three can operate on a single dedicated 120 volt, 20 amp circuit.
7. High speed printer and drum plotter - these two devices can operate on a single dedicated 120 volt, 20 amp circuit.

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R5 SERIES SINGLE STAGE ROTARY VANE VACUUM PUMPS.





Description

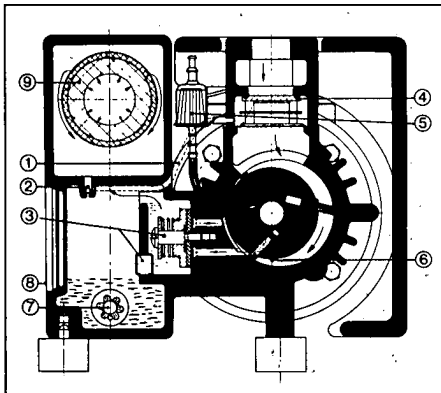
Busch R5 series pumps are single stage, multivane pumps of simple design and rugged construction suitable for industrial application. These pumps are available in two models and ten different sizes from 6 to 430 CFM. The two models are:

- | | | |
|------------------|-------------------------------|------------------------|
| 1. R5 Standard — | for rough vacuum applications | to 29.3" Hg (15 Torr) |
| 2. R5 Super — | for fine vacuum applications | to 29.9" Hg (0.5 Torr) |

Features

The following advantageous features are common to all R5 series pumps:

- Delivered complete with manual motor starter, ready to operate
- Very low vibration — not necessary to bolt pump down
- Air-cooled
- Quiet operation
- Direct driven — no belts or gears
- High water vapor tolerance* (28.7" Hg)
- Built-in, very effective oil mist elimination — no need to duct exhaust away
- Easy to install and service — no special training required
- Inlet check valve isolates system when pump is stopped
- Operates on SAE 30 non-detergent oil
- Compact, lightweight design



- ① Oil Return Line (R5 Standard, only)
- ② Oil Return Check Valve (R5 Super., only)
- ③ Exhaust Valve (R5 Super., only)
- ④ Anti-suckback Valve
- ⑤ Gas Ballast Valve and Filter
- ⑥ Gas Ballast Port
- ⑦ Oil Filter in Oil Supply Line
- ⑧ Oil Sight Glass
- ⑨ Exhaust Oil-mist Eliminator Filter

Applications

Busch R5 series pumps are especially suitable for rugged industrial applications where low initial cost, operating reliability and low maintenance are desired.

R5 series pumps have been operating successfully for many years in such applications as food packaging, chemical processing, vacuum drying, vacuum material handling, hospital equipment, paper handling and pumping of volatile or corrosive vapors.

*Water Vapor Tolerance of a vacuum pump is expressed in terms of the highest absolute pressure at which the pump will handle 100% water vapor. This means that for vacuums between 29.9" Hg and 28.7" Hg all of the water vapor going into the inlet of the pump will come out the exhaust of the pump without any condensation taking place in the pump, even if the load is 100% water vapor. At vacuums between 28.7" Hg and atmosphere, condensation can take place.



Technical Description

Busch R5 series pumps are rotary vane type pumps of a modular design which simplifies parts and service and provides long, trouble-free operation.

All pumps are air-cooled. Automotive grade oil in a recirculating oil system provides lubrication and sealing fluid. A built-in oil separator effectively eliminates oil vapor in the exhaust and, at the same time, returns oil for recirculation.

Coalescing oil separation elements are installed in the top of the oil mist eliminator. The coalescing element provides a 99.9% separation of oil from the exhaust air. Special felt elements are necessary for dusty applications.

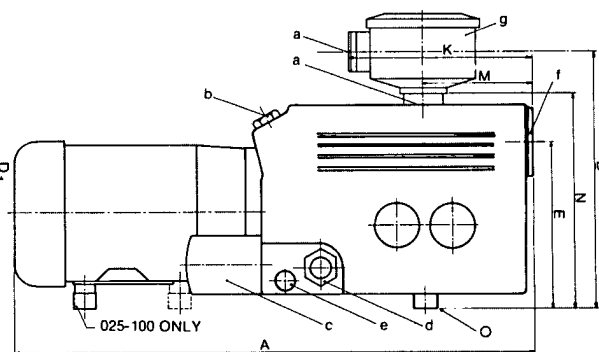
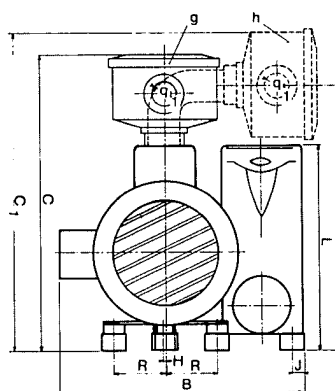
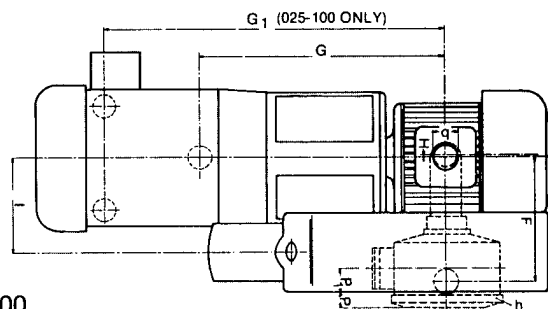
When the pump is switched off it is automatically vented to atmosphere. Simultaneously, the inlet check valve built into the inlet port closes, isolating the system. Thus oil suckback into the system is prevented.

All Super series pumps have a gas ballast valve which gives a water vapor handling capacity of up to 28.7" Hg.*

R5 pumps can be used as compressors up to 14.5 psig (1 bar) when equipped with a larger motor inlet filter and over pressure relief valve.

A wire mesh inlet screen is standard. On applications where powder, dust or grit are present in the process, a special cartridge type inlet filter is recommended. Other accessories such as capsule vacuum gauges, activated charcoal exhaust filters, and exhaust pressure gauges are also available.

- a Inlet port (male NPT)
- b Oil fill plug
- c Oil filter
- d Oil sight glass
- e Oil drain plug
- f Exhaust
- g Inlet dust filter
- h Inlet dust filter 025-100



R	---	---	2-3/4	2-3/4	3-3/4	3-3/4	---	---	---	---
q ₁	3/4	3/4	1-1/4	1-1/4	1-1/4	1-1/4	2	2	2	2
q	3/4	3/4	1-1/4	1-1/4	1-1/4	1-1/4	2	2	3	3
P ₁	---	---	13/16	13/16	4-15/16	4-1/4	---	---	---	---
P	---	---	1-1/16	1-1/16	---	---	---	---	---	---
O	8 mm	8 mm	8 mm	8 mm	8 mm	8 mm	10 mm	10 mm	12 mm	12 mm
N	9-3/8	9-3/8	---	---	---	---	17	17	26	26
M	3-15/16	3-15/16	5-9/16	5-9/16	6-5/16	6-5/16	9-3/8	9-3/8	13-7/16	21-7/16
L	7-7/8	7-7/8	10-1/4	10-1/4	11-1/2	11	15-3/4	15-3/4	25	25
K	7-3/4	7-3/4	10-7/8	10-7/8	11-11/16	12-5/16	16-1/2	16-1/2	24-1/16	32-9/16
J	5/8	5/8	5/8	5/8	5/8	5/8	3-1/4	3-1/4	4-1/4	4-1/4
I	3-13/16	3-13/16	4-3/4	4-3/4	7-1/8	7-1/8	9	9	13-13/16	13-13/16
H	3/16	3/16	9/32	9/32	3/8	3/8	1-1/8	1-1/8	13/16	13/16
G ₁	---	---	17	18-1/2	18-1/2	19-1/2	---	---	---	---
G	8-7/16	9-7/8	---	---	---	---	16	19-15/16	25-7/8	33-11/16
F	5-1/16	5-1/16	6-5/16	6-5/16	10-3/4	10-3/4	12-3/8	12-3/8	17-3/4	17-3/4
E	6-7/16	6-7/16	8-3/8	8-3/8	9-9/16	9-1/8	12-1/8	12-1/8	20-1/16	20-1/16
D ₁	---	---	13-5/16	13-5/16	14-5/16	15-1/2	---	---	---	---
D	10-1/16	10-1/16	---	---	---	---	22	22	34-1/2	34-1/2
C ₁	---	---	16	16	17	18-15/16	---	---	---	---
C	11-11/16	11-11/16	---	---	---	---	27-1/2	27-1/2	38-3/8	38-3/8
B	8-7/8	8-7/8	12-3/16	12-3/16	16-13/16	16-7/8	22-1/4	22-1/4	31-5/8	31-5/8
A	17-11/16	18-11/16	26-1/8	27-9/16	28-9/16	29-15/16	34-3/8	38-1/4	52-1/4	69-3/8
Type	010	016	025	040	063	100	160	250	400	630

Standard Specification for R5 Series Pumps

All R5 series pumps are supplied with 230/460 V, 3 ph, 60 Hz motor. The standard motor will also operate at the following voltages:

208 V - 60 Hz
380 V - 50 Hz
190 V - 50 Hz

Single phase motors for pumps from 010 through 250, as well as other special motors and voltages for all pumps, are available on request.

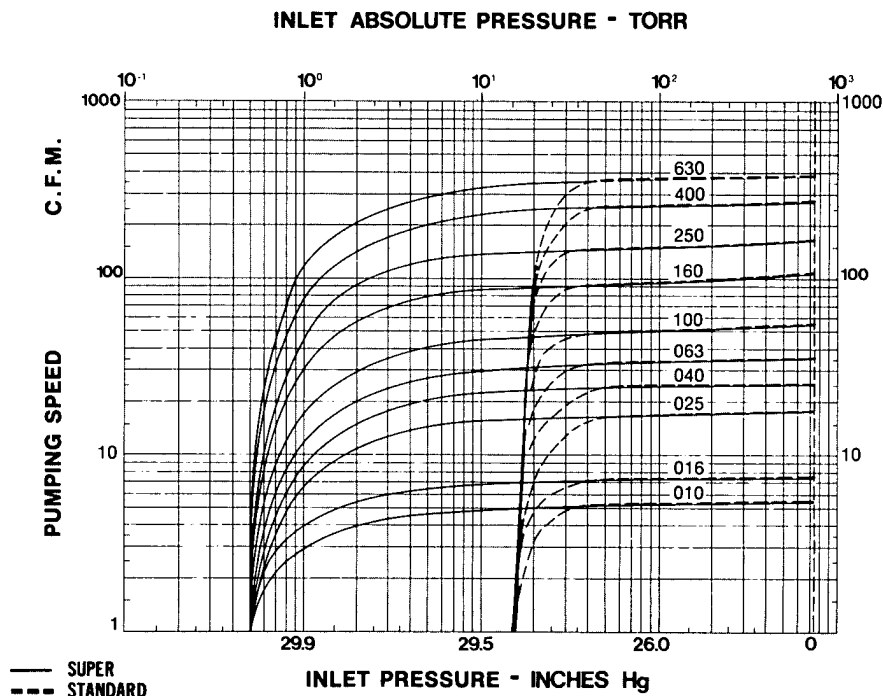
Manual motor starters are standard and are mounted to each pump unless otherwise specified at time of ordering.

All pumps are supplied with NPT male connector on inlet flange. For size see technical data.

Pumps are shipped without pump fluid. A non-detergent SAE 30 motor oil should be used as pump fluid in R5 series pumps. A built-in exhaust filter provides 99.9% oil mist elimination.

In normal operation, it is not necessary to duct the exhaust gas away from the pump.

TYPICAL PUMPING SPEED CURVES FOR R5 PUMPS



Technical Data

	Type	010	016	025	040	063	100	160	250	400	630
Free Air Displacement	CFM	6	8	20	28	41	63	117	174	300	430
Guaranteed end vacuum without gas ballast - R5 Super	in. Hg	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
Guaranteed end vacuum - R5 Standard	in. Hg	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3
Water vapor tolerance - R5 Super, with gas ballast	in. Hg	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7
Maximum sound level one meter from pump	dBA	69	70	68	69	70	71	79	82	83	85
Motor size	HP	0.75	0.75	1.5	2	3	5	7.5	10	20	25
Pump rotational speed	RPM	1710	1710	1700	1745	1710	1710	1740	1745	1150	1150
Oil Capacity, Type SAE 30 non-detergent	Qt.	0.5	0.5	1	1	2	2	5	5	13	15
Inlet connection - male NPT	inch	3/4	3/4	1-1/4	1-1/4	1-1/4	1-1/4	2	2	3	3
Weight of pump	lbs.	46	57	79	101	123	181	341	398	900	1110
Shipping weight (approximate)	lbs.	60	70	105	125	150	210	410	490	1050	1300
Ordering Information - Catalog Number											
R5 Super		010-112	016-112	025-132	040-132	063-132	100-132	160-132	250-132	400-212	630-212
R5 Standard		010-118	016-118	025-138	040-138	063-138	100-138	160-138	250-138	400-218	630-218

All pumps with 230 / 460 V, 3 ph, 60 Hz motor, motor starter, male NPT hose adapter, but without oil.

Busch, Incorporated
4974 Euclid Road
Virginia Beach, VA 23462
Phone: 804/497-8976
Telex: 823-451

We reserve right of alteration
R8-5000

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TERMS AND CONDITIONS OF SALE

Prices - Prices and the governing terms and conditions of sale are those set forth in Busch's current price lists, and are subject to change without notice. Unless otherwise specifically agreed, all prices are for material packed for domestic shipment and for delivery FOB Virginia Beach, Va. _____ Shipment will be freight collect.

Payments - Unless otherwise agreed upon in writing, terms of Payment are cash, in United States dollars, ½ - 10 days, Net 30 days from date of shipment. A monthly interest charge of 1½ % per month or any portion thereof is payable to unpaid balances after 45 days from date of shipment.

Accounts must be paid free of exchange, collection, or other charges. All orders are subject to the approval of Busch's Credit Department and Busch may require full or partial payment in advance. Prorata payments shall become due as shipments are made, except where shipments are delayed by the Purchaser for any reason, in which event payments shall become due from the date on which Busch is prepared to make shipment. Busch may elect to require payment based on the contract price or percentage of completion related to achievement of a project milestone. Project milestones being defined as a step performed by Busch, or an event or occurrence in the course of a contractual period. Any property held for Purchaser shall be at the risk and expense of the Purchaser.

In the event that Purchaser shall default in payment in accordance with the first paragraph in this Section, then the Purchaser agrees to pay all costs of collection including reasonable attorney's fees and court costs.

In the event that the Purchaser shall default in payment, Purchaser agrees to specifically allow Seller to have access to the machinery and Seller at his option without electing his remedies may repossess said machinery giving the Purchaser credit for its subsequent resale value, if any. If the repossessed machinery, subsequently sold by Seller, is insufficient to satisfy the outstanding balance, Purchaser agrees to pay any deficiency.

Taxes - The Purchaser shall reimburse Busch for any present or future sales, use, occupation, excise, or other tax arising out of sales of products to the Purchaser upon receipt of Busch's invoice for the amount of the tax; or, at the option of Busch, the Purchaser shall provide the Seller with a tax exemption certificate acceptable to the appropriate taxing authorities.

Delivery and Partial Shipments - Delivery is FOB, Virginia Beach, VA. _____. Shipping dates are estimates which are not guaranteed and are based upon prompt receipt of all necessary information. Busch, Inc. shall in no event be liable for delays caused by fire, act of God, strikes, labor difficulties, acts of governmental or military authorities, delay in transportation or in procuring materials or causes of any kind beyond Busch's control. Partial shipments may be made and payments therefore shall become due in accordance with the terms hereof or as shipments are made and invoices rendered.

Limited Warranty - Busch, Inc. warrants that all products furnished by it are free from defects in material and workmanship at the time of shipment for a period of eighteen (18) months from the date of shipment or one year from the date of installation, whichever occurs first. Claims must be made during that period and are limited to the replacement or repair of parts claimed to be defective.

In the case of components purchased by Busch, Inc., such as starters, controls, mechanical seals, motors, couplings, etc., the Warranty of that manufacturer will be extended to the Purchaser in lieu of any Warranty by us. The replacement of maintenance items including but not limited to packings, oil seals, bearings, and coils, made in connection with normal maintenance service is not covered by this Warranty.

This Limited Warranty is valid only when the product has been properly installed, used in a normal manner and serviced in strict accordance with the operating and maintenance manuals. The Limited Warranty shall not extend to products that have been misused, neglected, altered or repaired without factory authorization during the Warranty period. Operating conditions beyond our control such as improper voltage or water pressure, excessive ambient temperatures or other conditions that would affect the performance or life of the product will also cause the Warranty to become void.

Permission to return parts for warranty repair must be obtained and all returns must be prepaid to the factory. If, after examination, the product or part is found to be defective, it will be repaired or replaced on a no-charge basis and returned, FOB the factory. On the other hand, if it is determined that the Warranty has not been breached by Busch, Inc., then the usual charges for repair or replacement will be made, FOB the factory. Parts or products that are obsolete or those made to special order are not returnable.

THIS LIMITED WARRANTY APPLIES ONLY TO THE ABOVE AND IS FOR THE PERIOD SET FORTH AND IS IN LIEU OF ANY OTHER CLAIM FOR MERCHANTABILITY OR IMPLIED WARRANTY. BUSCH'S MAXIMUM LIABILITY SHALL NOT, IN ANY CASE, EXCEED THE CONTRACT PRICE FOR THE PRODUCT, PART OR COMPONENT CLAIMED TO BE DEFECTIVE AND BUSCH, INC. ASSUMES NO LIABILITY WHATSOEVER FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES ARISING FROM DEFECTIVE EQUIPMENT. THERE ARE NO WARRANTIES IMPLIED OR EXPRESSED WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN THE CONSTRUCTION OF ANY WARRANTY IT IS THE INTENTION OF THE PARTIES THAT THE LIMITED WARRANTY CONTAINED HEREIN SHALL BE DOMINANT.

Return of Goods - No goods may be returned for credit or under claim of Warranty without Busch's written consent and shipping instructions.

Claims - Claims for shortage must be made within five (5) days after receipt of goods. All other claims must be made within 30 days of shipping date.

Cancellations - Cancellation of all or any part of an order made by Purchaser and accepted by Busch may not be made without Busch's written consent. On orders for special goods or goods requiring special handling, a charge will be made for labor and material expended by Busch, Inc.

Acceptance - All orders are subject to acceptance by Busch, Inc. at its home office. No changes or modifications of the above Terms and Conditions shall be binding upon Busch, Inc. unless made in writing and signed by Busch. Unless stated otherwise herein, this quotation supersedes all previous quotations and agreements relating to this transaction and shall expire thirty (30) days after its date. No provisions of Purchaser's order which contradict, modify or add to any of the provisions on the face or reverse side hereof shall be binding unless made in writing and signed by Busch, Inc. In no event shall any claim for consequential or special damages be made by either party.

Interpretation - This Agreement shall be construed in accordance with the law prevailing in the Commonwealth of Virginia. This Agreement contains the entire Agreement between the parties hereto.